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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,927	02/02/2001	Hisaya Ishihara	NECN 18.304	3865
26304	7590	12/28/2004	EXAMINER	
			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/775,927	ISHIHARA, HISAYA	
	Examiner	Art Unit	
	Kevin Y Kim	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09-02-2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-9 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1, 8 and 9 is/are rejected.

7) Claim(s) 2-7 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ .
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____ .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed September 2, 2004 have been fully considered but they are not persuasive.

Claim 1 has been amended to further include the limitation "said frequency conversion block including a single second frequency divider for dividing said oscillation frequency by a factor of two to generate a divided frequency." But this further limitation is still short of patentably distinguishing the present invention from the prior art, since the frequency conversion block described in the prior art (shown in Fig. 5 of the present application) also includes a single second frequency divider (310) for dividing said oscillation frequency (fosc) by a factor of two to generate a divided frequency (1/2 fosc). According to the Remarks concurrently filed, applicant apparently intended to define the frequency conversion block to include only one single frequency divider as opposed to two frequency dividers. However, because of the claim language using the transitional work "including" the claim does not exclude a QAM that includes more than one frequency divider. Amendment of the claim consistent with the Remark is suggested.

Claim 8 has been amended to include "using N frequency mixers" and applicant asserts that this amendment differs from the prior art where N=1. However, since the claim fails to define "N" to exclude the case where N=1, the prior art still reads on the claimed invention.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by an admitted prior art.

Consider claims 1 and 8. The admitted prior art, depicted in Figs. 3 and 5 and described at pages 3-8 shows a quadrature modulator/method comprising:

- 1) a local oscillator (402) whose frequency f_{osc} is “4/(2N+1) times,” i.e., 4/3 times where $N = 1$, of the carrier frequency f_{out} ,
- 2) a frequency conversion block (301 and 250) for multiplying the oscillating frequency by $(2N+1)/2$,” i.e., 3/2 where $N = 1$, see that the output of the frequency multiplier (250) is $3/2 f_{osc}$
- 3) a first frequency divider (240) for dividing the output of the frequency conversion block by two to generate a pair of carrier waves, see the two output carrier waves from the frequency divider (240)
- 4) first and second multipliers (210 and 220) for modulating the two carrier waves with a digital baseband signal (101) and
- 5) an adder (230) for adding the two modulated carrier waves to output a digital carrier signal f_{out} .

Next consider claim 9. The admitted prior art, depicted in Figs. 3 and 5 and described at pages 3-8 shows a quadrature modulator/method comprising:

- 1) a digital signal generator (101),
- 2) a local oscillator (402) whose frequency f_{osc} is “4/(2N+1) times,” i.e., 4/3 times where $N = 1$, of the carrier frequency f_{out} ,

- 3) a frequency conversion block (301 and 250) for multiplying the oscillating frequency by $(2N+1)/2$, i.e., $3/2$ where $N = 1$, see that the output of the frequency multiplier (250) is $3/2 f_{osc}$
- 4) a first frequency divider (240) for dividing the output of the frequency conversion block by two to generate a pair of carrier waves, see the two output carrier waves from the frequency divider (240)
- 5) first and second multipliers (210 and 220) for modulating the two carrier waves with a digital baseband signal (101) and
- 6) an adder (230) for adding the two modulated carrier waves to output a digital carrier signal f_{out}

wherein the frequency conversion block (301 and 250) includes a bandpass filter (330) and the output signal from the bandpass filter is supplied (via frequency multiplier 250) to the said first frequency divider (240).

Allowable Subject Matter

4. Claims 2-7 are allowed.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kvk

Chieh M. Fan
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PRIMARY EXAMINER